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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/451,979

Applicant(s)

SAMESHIMA, KATSUMI

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 6-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * If not, attach detailed Office action for a list of the certified copies not received.

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) ☐ Notice of Foreign Priority (PTO-893) ☐ Notice of Foreign Priority (PTO-894) ☐ Notice of Foreign Priority (PTO-895) ☐ Notice of Foreign Priority (PTO-896) ☐ Notice of Foreign Priority (PTO-897) ☐ Notice of Foreign Priority (PTO-898) ☐ Notice of Foreign Priority (PTO-899) ☐ Notice of Foreign Priority (PTO-900)
- 18) ☐ Interview Summary (PTO-413) Paper No(s) ____ ☐ Notice of Foreign Priority (PTO-893) ☐ Notice of Foreign Priority (PTO-894) ☐ Notice of Foreign Priority (PTO-895) ☐ Notice of Foreign Priority (PTO-896) ☐ Notice of Foreign Priority (PTO-897) ☐ Notice of Foreign Priority (PTO-898) ☐ Notice of Foreign Priority (PTO-899) ☐ Notice of Foreign Priority (PTO-900)

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-5, drawn to a semiconductor device, classified in class 257, subclass 295.
 - II. Claims 6-14, drawn to method of manufacturing the device, classified in class 438, subclass 3.

Applicant elects Group I, which is drawn to claims 1-5 with traverse.

2. Because these inventions are distinct for the reasons given in the previous and since the inventions would require a search in different classes, the extra search would represent an undue burden on the examiner. The restriction as indicated is, therefore, proper and the restriction is made final.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans et al. (US 5,614,438).

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- An insulation film 34;
- A hollow 40 formed in a top surface of the insulation film;
- A lower electrode 45 formed in the hollow;
- A ferroelectric 46 formed on the lower electrode; and
- An upper electrode 54 formed on ferroelectric.

With regard to claim 2, Evans et al. disclose a ferroelectric memory having a film 35 formed in the bottom of the hollow and separating between the insulation 34 and the lower electrode 45 (fig. 4)

With regard to claim 4, Evans et al. disclose the lower electrode is formed on a surface of the same material as that of the lower electrode (col. 3, lines 34-38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Evans et al. (US 5,614,438) in view of Lee (US 6,078,093).

portions. However, Lee teaches that the first lower electrode portion formed in the hollow is a

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barrier layer which prevents the formation of the interface oxide film. The second lower electrode portion is the high conductivity metal such as Pt, Pd, Rh, and Ru, etc (Lee col. 1, lines 46-67). Thus, it would have been obvious at the time the invention was made to have two lower electrode portion to prevent the formation of oxide in the interface. It is known in the art that the layer is formed at the corner of the hollow first due to the tangential force of the spinning action. Therefore the first lower electrode would be formed at the corner and the second electrode portion would be formed on the first lower electrode.

With regard to claim 5, Evans et al. do not disclose the lower electrode and the insulation film are planarized flush with each other. However, Evans et al. modified by Lee in claim 3 above would have the first and second lower electrode portions. Lee discloses that the layers are chemical mechanical polished and planarized to expose the insulation layer 28 (col. 6, lines 30-36 and fig. 2i).


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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is 703-305-0474. The examiner can normally be reached on Mon-Fri, 7:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

wsl
April 23, 2001


Olik Chaudhuri
Supervisory Patent Examiner
Technology Center, USPTO